REMARKS/ARGUMENTS

Reconsideration of the present application, as amended, is respectfully requested.

The June 15, 2005 Office Action and the Examiner's comments have been carefully considered. In response, claims are cancelled and amended, and remarks are set forth below in a sincere effort to place the present application in form for allowance. The amendments are supported by the application as originally filed. Therefore, no new matter is added.

Inasmuch as the present Amendment raises no new issues for consideration, and, in any event, places the present application in condition for allowance or in better condition for consideration on appeal, its entry under the provisions of 37 CFR 1.116 are respectfully requested.

SPECIFICATION

The specification is amended to correct an inadvertent typographical error at page 28. No new matter is added.

REJECTION UNDER 35 USC 112, FIRST PARAGRAPH

In the Office Action claims 1-6 are rejected under the first paragraph of 35 USC 112 as failing to comply with the written description requirement. The Examiner states that the claims

contain subject matter which was not described in the specification in such a way as to support Applicants' claim to the magnitude of the first optical pulse being greater than the magnitude of the second optical pulse.

In response, the claims are amended and remarks are provided in a sincere effort to overcome the rejection.

Initially, it should be noted that the specification has the following description at page 27, lines 5-18:

> (Second embodiment)
>
> In the case of this embodiment, an autocorrelation-error detection apparatus when an optical branch unit branches light power under an ununiform state is described though the basic configuration is the same as that of the autocorrelation-error detection apparatus of the above first embodiment using an optical branch system.
>
> FIG. 4 is a block diagram illustrating a configuration of the autocorrelation-error detection apparatus of this embodiment using an optical branch system.

According to the above, in the second embodiment as shown in FIG. 4, the optical branch unit branches light power at a ratio other than 1:1.

In addition, the specification also states the following at page 27, lines 21-23.

> The autocorrelation-error detection apparatus 10 branches an optical signal to be measured into m:n (m > n) by an optical branch unit 111.

Since ">" represents a sign of inequality, "(m > n)" in the above phrase denotes the inequality meaning "m is greater than n." This is a basic mathematical principle that any person skilled in the art can easily understand.

Further, FIG. 4 shows that the magnitude of the second optical pulse signal is "m" and that of the first optical pulse signal is "n", which has been branched by the optical branch unit 111.

Therefore, according to the above phrase and FIG. 4, it is readily understood that the optical branch unit 111 branches the optical signal to be measured at a ratio of m:n, and when the optical signal is branched, it is branched as m > n, namely, at a ratio represented by the inequality m>n, so that the magnitude of the second optical pulse signal "m" is greater than that of the first optical pulse signal "n".

In addition, the specification has the following description at page 27, line 24, to page 28, line 2:

> This is because the waveform linearity of an optical signal branched by the optical branch unit 111 can be obtained at the side for detecting noise but wave linearity cannot be always obtained at the reference side (it is enough that 0 or 1 can be determined).

This description serves as the basis of the optical branch unit 111 performing the branching such that the magnitude of the

second optical pulse signal "m" is greater than that of the first optical pulse signal "n" as mentioned above.

Further, the specification has the following description at page 28, lines 3-7:

> Therefore, it is permitted to branch the input light of 1.1 mW to be measured m:n (m > n) and branch the noise side into 1.0 mV and the reference side into 0.1 mV or amplify an electrical signal at the reference side by an amplifier and use it as a reference signal.

In the above description, the terms "1.0 mV" and "0.1 mV" are obviously typographical errors for --1.0 mW-- and --0.1 mW--. The specification describes that the magnitude of the noise side, namely, the second optical pulse signal "m" is 1.0 mW, and the magnitude of the reference side, namely, the first optical pulse signal "n" is 0.1 mW. That is, a specific example is given in the specification that when the optical branch unit 111 branches the input light to be measured at a ratio of m:n as mentioned above, the input light is branched such that the magnitude of the second optical pulse signal ("m=1.0 mW") is ten times greater than the magnitude of the first optical pulse signal (n=0.1 mW").

This description also serves as the basis of the optical branch unit 111 performing the branching such that the magnitude of the second optical pulse signal "m" is greater than that of the first optical pulse signal "n", as mentioned above.

In view of the foregoing, reconsideration and withdrawal of the rejection of claims 1-6 under the first paragraph of 35 USC 112 are respectfully requested.

PRIOR ART REJECTIONS

In the Office Action claims 1-3 and 5 are rejected under 35 USC 103 as being unpatentable over Applicants' Admitted Prior Art in view of USP 5,793,511 (Bulow). Claims 4 and 6 are rejected under 35 USC 103 as being unpatentable over Applicants' Admitted Prior Art in view of Bulow, and further in view of USP 6,240,055 (Takamine).

In response, claim 2 is cancelled and limitations from claim 2 along with other limitations are added to claims 1 and 5 to more clearly define the present claimed invention over Applicants' Admitted Prior Art and the cited reference.

In the Office Action the Examiner relies upon Applicants' Admitted Prior Art (Fig. 5) in combination with Bulow. The Examiner states that Bulow teaches that it is well known in the art to optically branch an optical signal and supply the optically branched signal to first and second optical receivers. The Examiner also states that Bulow discloses that the pair of optical receivers are further coupled to respective decision circuits and that a person skilled in the art would have been

motivated to employ such a structure in order to allow the optical separation of the signal.

USP 5,793,511 (Bulow) discloses an optical receiver comprising an equalizing circuit for equalizing interference caused by polarization mode dispersion (PMD). As shown in Fig. 1 of Bulow, light is branched at point 1.6, and the two orthogonally polarized optical signals are converted into two electrical signal components (S_-, S_+). For each of the electrical signal components S_- and S_+ a quality signal value Q is measured at points 2.1 and 2.6 in Fig. 2. The branching into points 3.1 and 3.3 to measure quality signal value Q is performed electrically at point A (see the copy of Figs. 3 and 4 of USP 5,793,511 attached to the February 8, 2005 Amendment), for example in the case of 2.1 as shown in Fig. 3. This is different from the present claimed invention wherein branching into the noise detection side and reference side is performed optically.

In addition, the multistage decision circuits (2.1, 2.6) of Bulow correspond to a system consisting of features 3, 4, 6, and 9 in the prior art (FIG. 5) admitted by Applicants. Point A corresponds to the feature 3, points (3.1, 3.3) correspond to the features (4, 6), and point 3.2 corresponds to the feature 9.

With regard to claim 2, the Examiner indicates that the combined references teach that optical branch means outputs first

and second optical pulse signals by setting magnitudes of the signals to m:n when branching the optical signal to be measured, because the branch means inherently divides the optical signals into two signals which have a relationship with each other.

However, the subject matter of former claim 2 was not intended as merely dividing the optical signals into two signals having a relationship with each other by the branch means. Instead the magnitudes of the signals are set to m:n (m > n) so as to satisfy a characteristic relationship of the present invention that "the waveform linearity of the branched optical signal can be obtained at the noise detection side but not at the reference side," which is not taught, disclosed or suggested in the references.

That is, the subject matter of former claim 2 essentially relates to the following feature:

> said optical branch means (11) outputs said first and second optical pulse signals by setting magnitudes of the signals to m:n (m>n) where m corresponds to the magnitude of said second optical pulse signal and n corresponds to the magnitude of said first optical pulse signal, so that the magnitude of said second optical pulse signal is greater than that of said first optical pulse signal, when optically branching said optical signal to be measured into said first optical pulse signal at the reference side and into said second optical pulse signal at the noise detection side.

Not only is the optical branch means of Bulow different from the optical branch means of the present claimed invention, Bulow

also does not disclose, teach or suggest the subject matter of former claim 2 that the magnitudes of the signals are set to m:n ($m > n$) so as to satisfy the relationship of the present invention, based on the condition that "the waveform linearity of the branched optical signal can be obtained at the noise detection side." Therefore, even a person skilled in the art would not be able to arrive at the subject matter of amended claims 1 and 5 which includes limitations from former claim 2 and additional limitations, by combining Applicants' Admitted Prior Art (FIG. 5 of the present application) with the Bulow reference.

In view of the foregoing, claims 1 and 5 are patentable over Applicants' Admitted Prior Art taken in combination with Bulow.

Claims 3, 4 and 6 are either directly or indirectly dependent on claims 1 and 5 and are patentable over the cited references in view of their dependence on claims 1 and 5 and because the references do not disclose, teach or suggest each of the limitations set forth in the dependent claims.

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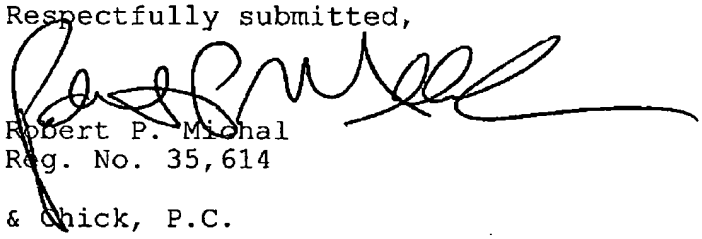
Entry of this Amendment under the provisions of 37 CFR 1.116, allowance of the claims and the passing of this application to issue are respectfully solicited.

If the Examiner disagrees with any of the foregoing, the Examiner is respectfully requested to point out where there is support for a contrary view.

If the Examiner has any comments, questions, objections or recommendations, the Examiner is invited to telephone the undersigned at the telephone number given below for prompt action.

Respectfully submitted,



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